Characterizing the individual course of health-related quality of life after subarachnoid hemorrhage: latent growth mixture modeling

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Abstract

Background and Purpose: Survivors of aneurysmal subarachnoid hemorrhage (SAH) show heterogeneous profiles of health-related quality of life (HrQoL). The objective was to characterize individual differences in the course of HrQoL after SAH by using latent growth mixture modeling (LGMM).

Methods: A longitudinal study with 113 incident cases of aneurysmal SAH treated in the Department of Neurosurgery and Neuroradiology at the University of Bonn between January 2004 and December 2005 was performed to evaluate clinical parameters (Hunt and Hess scale, Barthel-Index, Rankin Scale, Beck Depression Inventory) and HrQoL data (EQ-5D) at baseline, 6 and 12 months. The heterogeneity in HrQoL courses after SAH was analysed using LGMM.

Results: Four subgroups (latent classes) with different patterns of HrQoL-course were identified. Class 1 describes the worst HrQoL-course with a low EQ-5D index score at baseline (0.33) and a non-significant change in scores over time. Class 3 shows rapid

recovery from initially low EQ-5D scores (0.37) during the first 6 months (Δ=0.47). Classes 2 and 4 have 48-57% better initial HrQoL and end with similarly high HrQoL scores. Class 4 experience a temporary reduction of HrQoL by 55%. Clinical parameters characterizing differences between classes were severity of SAH, functional outcome, cognitive impairment and post-stroke depression. Treatment of post-stroke depression would improve HrQoL in classes 1 and 4 by 33-180%.

Conclusions: This study provides a more elaborated understanding of individual differences in long-term course of HrQoL after SAH. Identification of different patterns of disease course using LGMM may help to find subgroups of treatment responders and to develop individual therapy regimes.